Claims

1. A distribution system (10) for a process fluid for chemical and/or electrolytic surface treatment of a rotatable substrate,
wherein the distribution system (10) comprises a distribution body (1),
wherein the distribution body (1) comprises a plurality of openings (2) ~~divided into at least a first portion (21) and a second portion (22)~~,
wherein some of the openings (2) are configured to provide the process fluid flow and other openings (2) are configured to provide a current density distribution,
~~wherein the first portion (21) of the openings (2) is configured to provide the process fluid flow and the second portion (22) of the openings (2) is configured to provide a current density distribution,~~
~~wherein the second portion (22) of the openings (2) is arranged in a spiral-shaped pattern on a surface (1b) of the distribution body (1), and~~
~~wherein the first portion (21) of the openings (2) is arranged on the surface (1b) of the distribution body (1) independently of second portion (22) of the openings (2).~~wherein the openings (2) for providing the process fluid flow are arranged in a spiral-shaped pattern on a surface (1b) of the distribution body (1), and
wherein the openings (2) for providing the current density distribution are arranged on the surface (1b) of the distribution body (1) independently of the openings (2) for providing the process fluid flow.

2. Distribution system (10) according to claim 1, wherein, in case the substrate is rotating relative to the distribution body (1), the spiral-shaped pattern enables several areas of the substrate to be exposed to similar process fluid flows and/or similar current density distributions, respectively.

3. Distribution system (10) according to one of the preceding claims, wherein the spiral-shaped pattern is formed in that the openings (2) are arranged along an imaginary curve, which winds around a starting point (C) on the distribution body (1) at a continuously increasing distance from the starting point.

4. Distribution system (10) according to claim 3, wherein the starting point (C) is a geometric centre (C) of the distribution body (1).

5. Distribution system (10) according to claim 3, wherein the starting point (C) is outside a geometric centre (C) of the distribution body (1).

6. Distribution system (10) according to one of the claims 1 to 5, wherein the spiral-shaped pattern is based on an Archimedean spiral (S1).

7. Distribution system (10) according to one of the claims 1 to 5, wherein the spiral-shaped pattern is based on a logarithmic spiral (S2).

8. Distribution system (10) according to one of the claims 1 to 5, wherein the spiral-shaped pattern is based on a parabolic spiral.

9. Distribution system (10) according to one of the claims 1 to 5, wherein the spiral-shaped pattern is based on a square root spiral.

10. Distribution system (10) according to one of the claims 1 to 5, wherein the spiral-shaped pattern is based on a hyperbolic spiral.

11. Distribution system (10) according to one of the claims 1 to 5, wherein the spiral-shaped pattern is based on a Fibonacci spiral.

12. Distribution system (10) according to one of the preceding claims, wherein the spiral-shaped pattern is a combination of two or more spirals.

13. An electrochemical deposition system (20) for a chemical and/or electrolytic surface treatment of a substrate, comprising:

- a distribution system (10) according to one of the preceding claims, and

- a substrate rotation system,

wherein the substrate rotation system is configured to rotate a substrate relative to a distribution body (1) of the distribution system (10).

14. A method for a chemical and/or electrolytic surface treatment of a substrate in a process fluid, comprising:

- providing a distribution system (10) comprising a distribution body (1) with a plurality of openings (2) ~~divided into a first portion (21) and a second portion (22),~~,
- rotating the substrate relative to the distribution system (10), and
- providing the process fluid flow via ~~a first portion~~ some of the openings (2) and providing a current density distribution via ~~a second portion of the~~ other openings (2),

wherein ~~the first portion (21) of~~ the openings (2) ~~is configured to~~ for ~~provide~~ providing the process fluid flow ~~and the second portion (22) of the openings (2) is configured to provide a current density distribution,~~

~~wherein the second portion (22) of the openings (2) is~~ are arranged in a spiral-shaped pattern on a surface (1b) of the distribution body (1), and

wherein ~~the first portion (21) of~~ the openings (2) for providing the current density distribution ~~is~~ are arranged on the surface (1b) of the distribution body (1) independently of ~~second portion (22) of~~ the openings (2) for providing the process fluid flow.